

# Military Health System Information Management & Technology

*Now & Into the Future*

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*Acting Chief Information Officer,  
Military Health System*







# Preview of Topics

- Military Health System (MHS)
- MHS Information Management & Technology
- MHS IT Capabilities
- Direction for the Future

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# The Military Health System





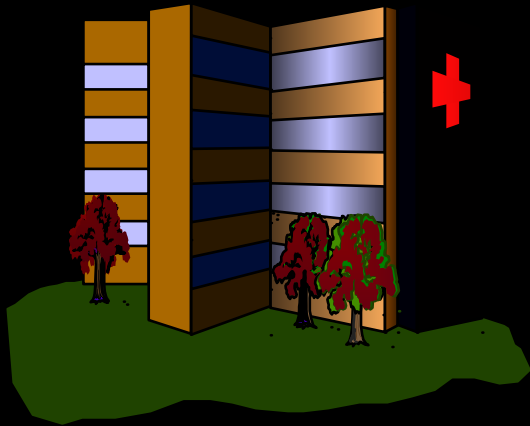
# Mission

To Enhance the Department of Defense and Our Nation's Security by Providing Health Support for the Full Range of Military Operations and Sustaining the Health of All Those Entrusted to Our Care



# Mission

Provide Patient  
Care, Sustain  
Skills &  
Training



to Promote &  
Protect Health  
of the Force



and Deploy to  
Support the  
Combatant  
Commanders



Deploy Medical  
Force

Deploy  
Healthy Force

Deploy  
Healthy Force

Manage  
Beneficiary

Manage  
Beneficiary

Manage  
Beneficiary





# Scope of Operations



# Levels of Care



**First Responder**



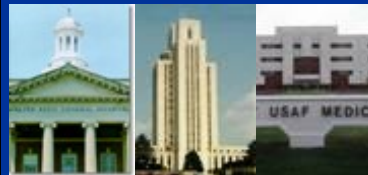
**Forward  
Resuscitative  
Surgery**



**Theater  
Hospitalization**



**Enroute Care**



**Care Outside  
Theater**

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First responder





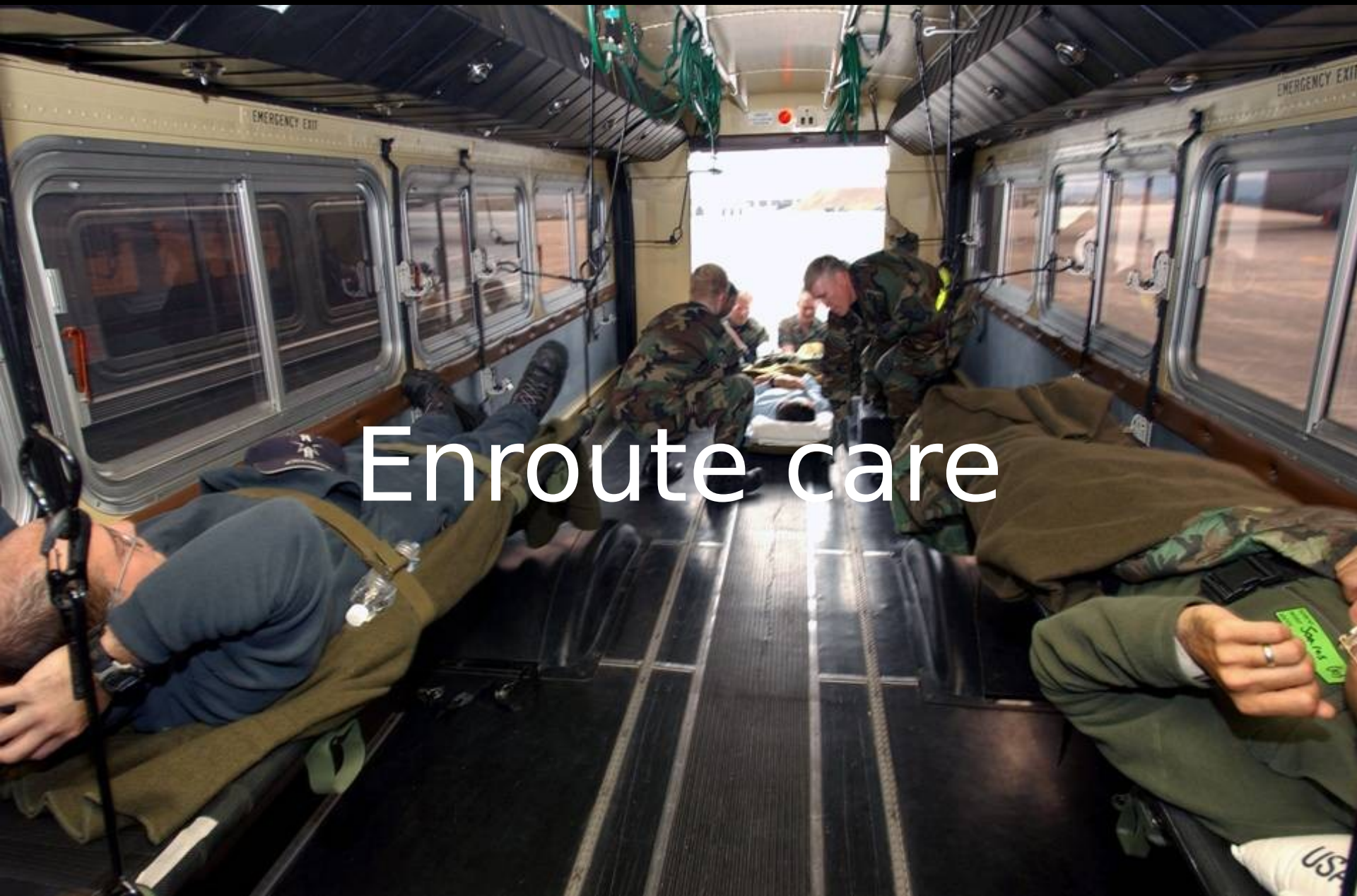
forward resuscitative surgery



# Theater hospitalization







# Enroute care

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A photograph of two men in hospital beds. The man in the foreground is wearing a grey t-shirt, glasses, and a baseball cap, looking towards the camera. He has a medical ID band on his left wrist and a small red mark on his arm. The man in the background is wearing a white hospital gown and dark pants, looking away from the camera. He has a cast on his right leg and a bandage on his left arm. Between the beds is a table with various items, including a red flag, a box of tissues, and some papers. A television is mounted on the wall in the background.

Care outside theater



# Levels of Care



**First Responder**



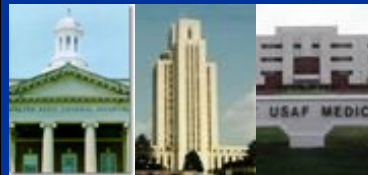
**Forward  
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**Theater  
Hospitalization**



**Enroute Care**

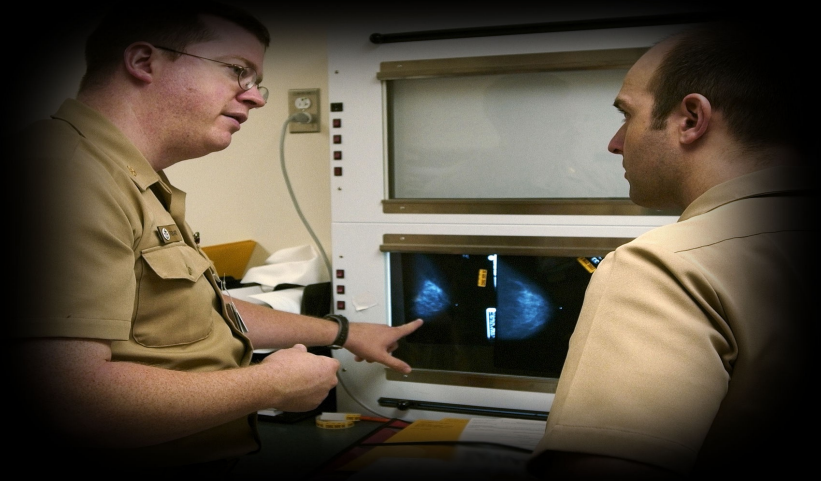


**Care Outside  
Theater**

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# Facts & Figures

- 9.1 million beneficiaries
- 70 military hospitals/  
medical centers
- 411 medical clinics
- 417 dental clinics
- 130,800 employees





# A Week in the Life

- 1.7 million professional encounters (outpatient)
- 19,200 inpatient admissions
- 400,000 dental procedures
- 1.9 million prescriptions
- 2,000 births





# MHS Information Management & Technology





# Vision

Provide Our Military Forces With Access to Timely, Reliable, Secure Health Information in Support of the DoD Health Care Mission



# What MHS IMIT Provides

- Tri-Service
  - IT infrastructure
  - Information systems
  - Decision Support capabilities
  - Enterprise Architecture
  - Information Security
- Federal
  - Computer/Electronic Accommodations
  - Interoperability/Data Sharing

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# Strategic Direction



# Strategic Principles



## Commercial Off-the-Shelf Products Versus New Development

Information Assurance

IT Capital Investment Plan Approved by Senior Leadership

IT Investment Driven by Mission Requirements & Operational Priorities

Standard Tri-Service IT Capabilities Selected by Service Subject Matter Experts

Information Available and Protected

Commercial Off-the-Shelf Products Versus New Development

DoD Common Operating Environment  
*Interchangeable  
Interoperable  
Transparent*

Validation of Process Through Prototyping

Uniform Data Sets, Processes, and Standards

Quality Data Entered Only Once

Integrate/Reuse Common Functionality

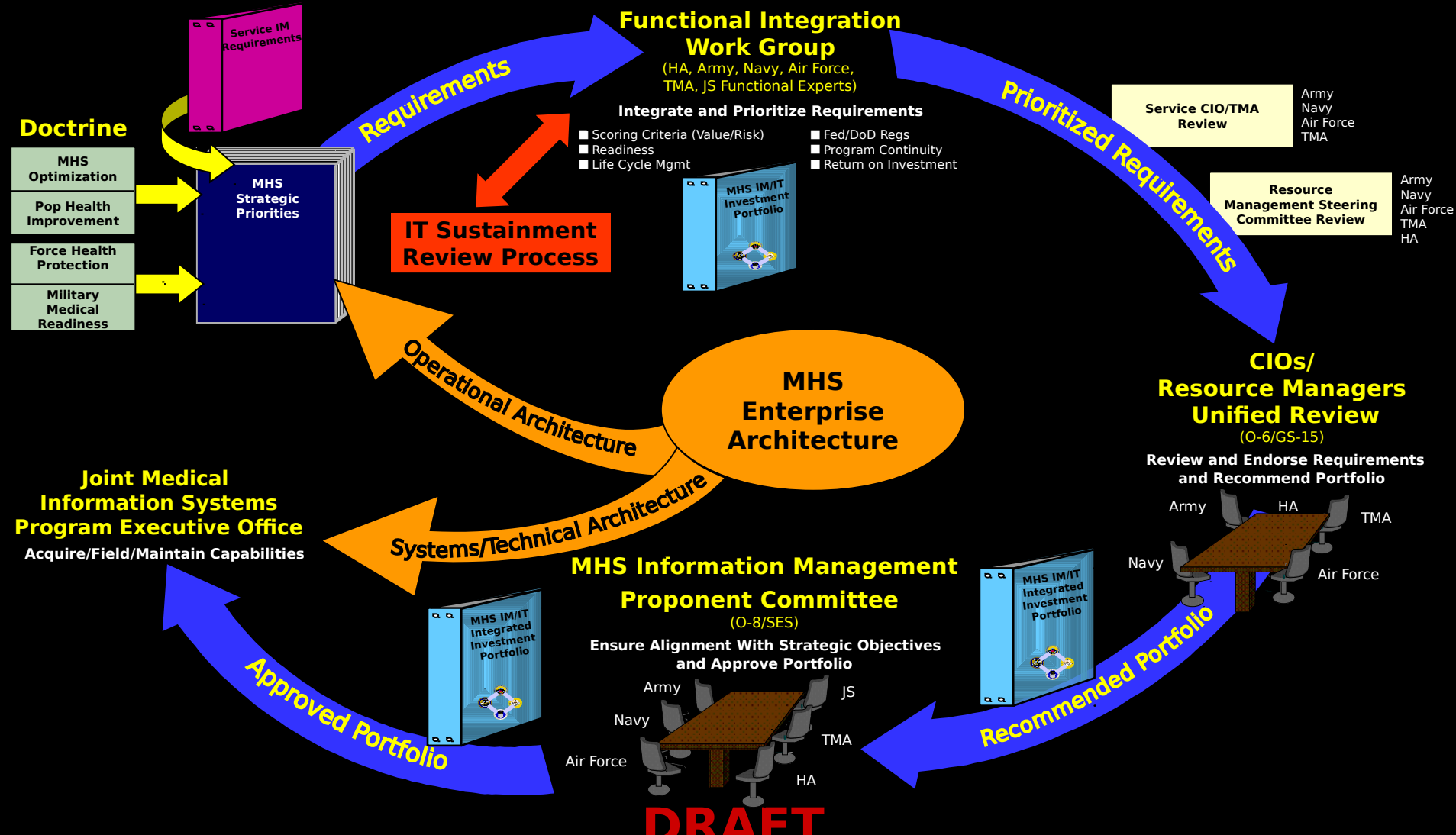
Incremental Deployments That Afford Quick Benefits



# **MHS IT Capital Investment**

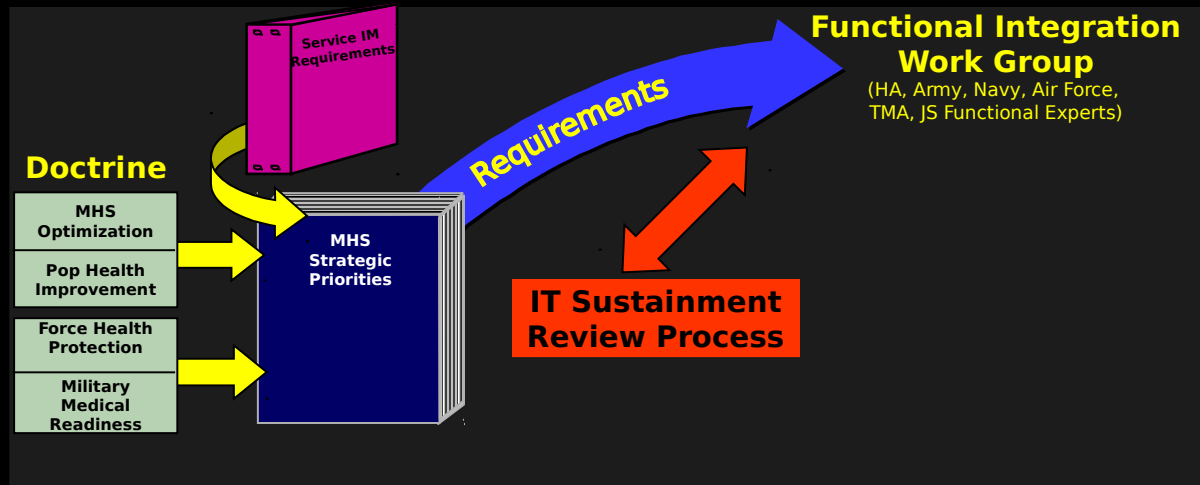
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# Investment Portfolio Process



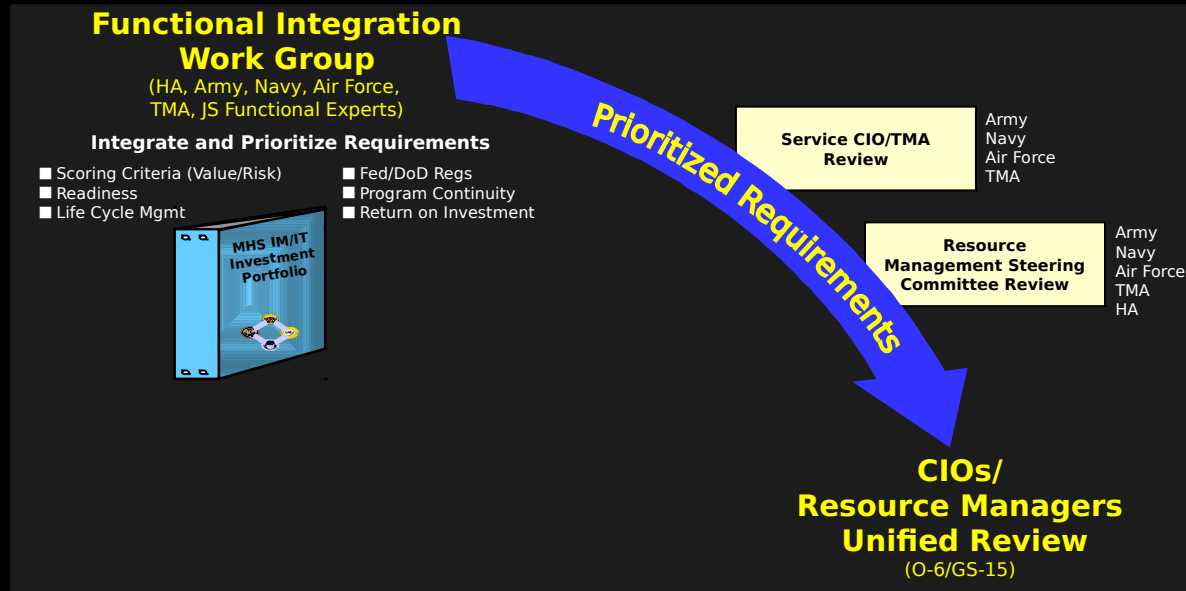


# Investment Portfolio Process



- Analyze current capabilities against Army, Navy, and Air Force requirements and MHS and DoD doctrine, guidance, and regulations
  - Submit new and updated requirements to the Functional Integration Work Group (FIWG)
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# Investment Portfolio Process



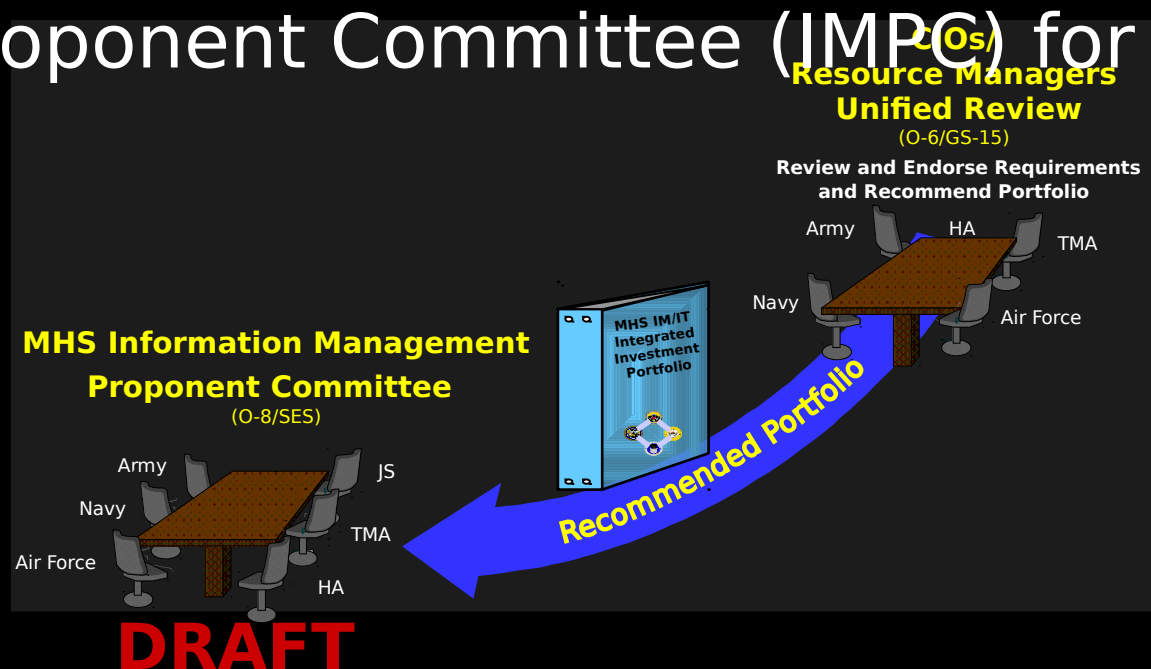
- Validate and prioritize requirements
- Integrate prioritized requirements into portfolio
- Verify portfolio addresses Service medical priorities

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# Investment Portfolio Process

- Amend portfolio as necessary
- Endorse requirements and recommend portfolio
- Submit portfolio to MHS Information Management Proponent Committee (IMPC) for approval



# Investment Portfolio Process

- Ensure investments align with strategic objectives and comply with regulations and mandates
- Approve portfolio
- Forward portfolio to Joint Medical Information Systems Office for acquisition and fielding

**Joint Medical  
Information Systems  
Program Executive Office**  
Acquire/Field/Maintain Capabilities



Approved Portfolio

## **MHS Information Management Proponent Committee**

(O-8/SES)

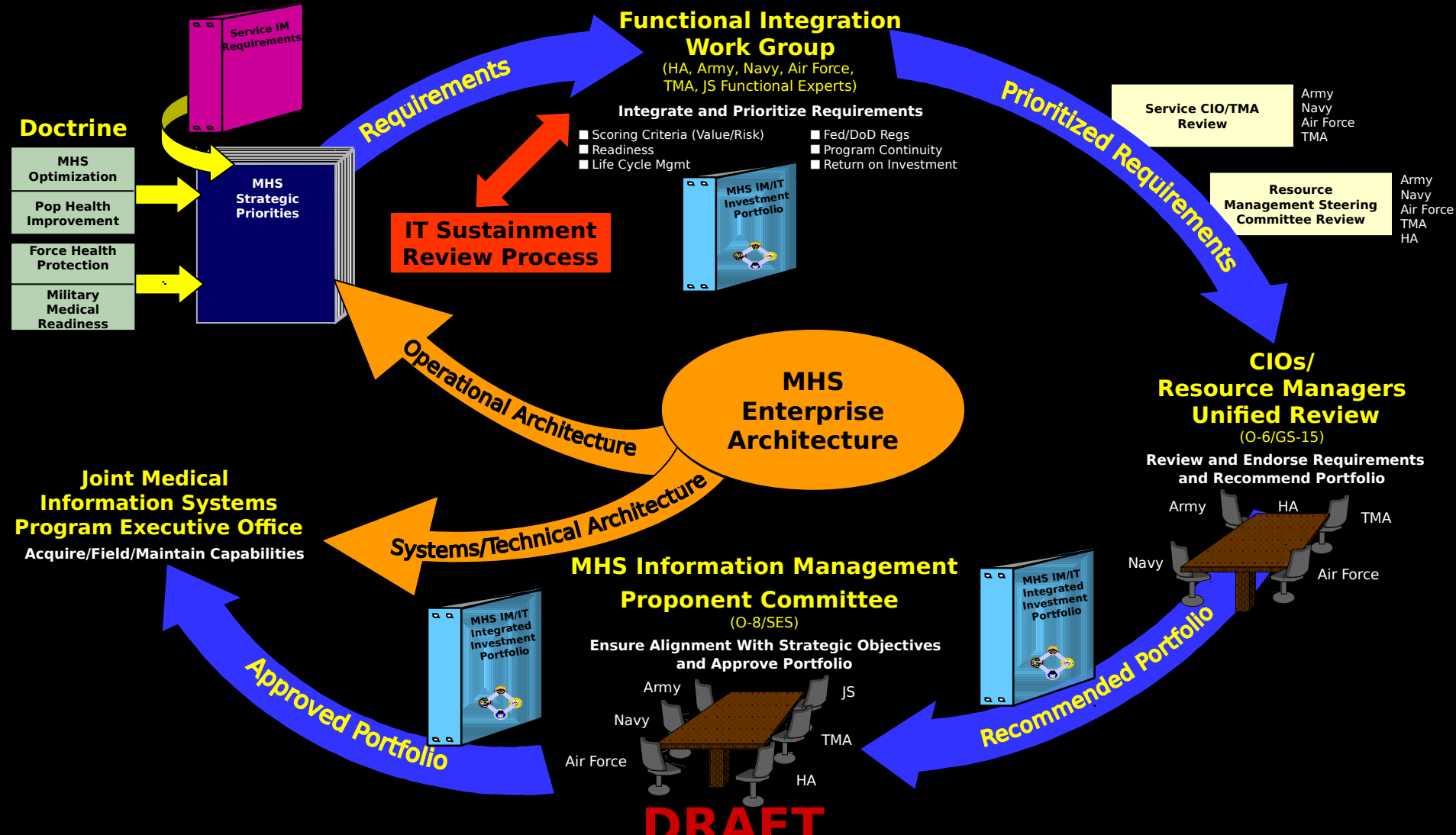
Ensure Alignment With Strategic Objectives  
and Approve Portfolio



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# Investment Portfolio Process



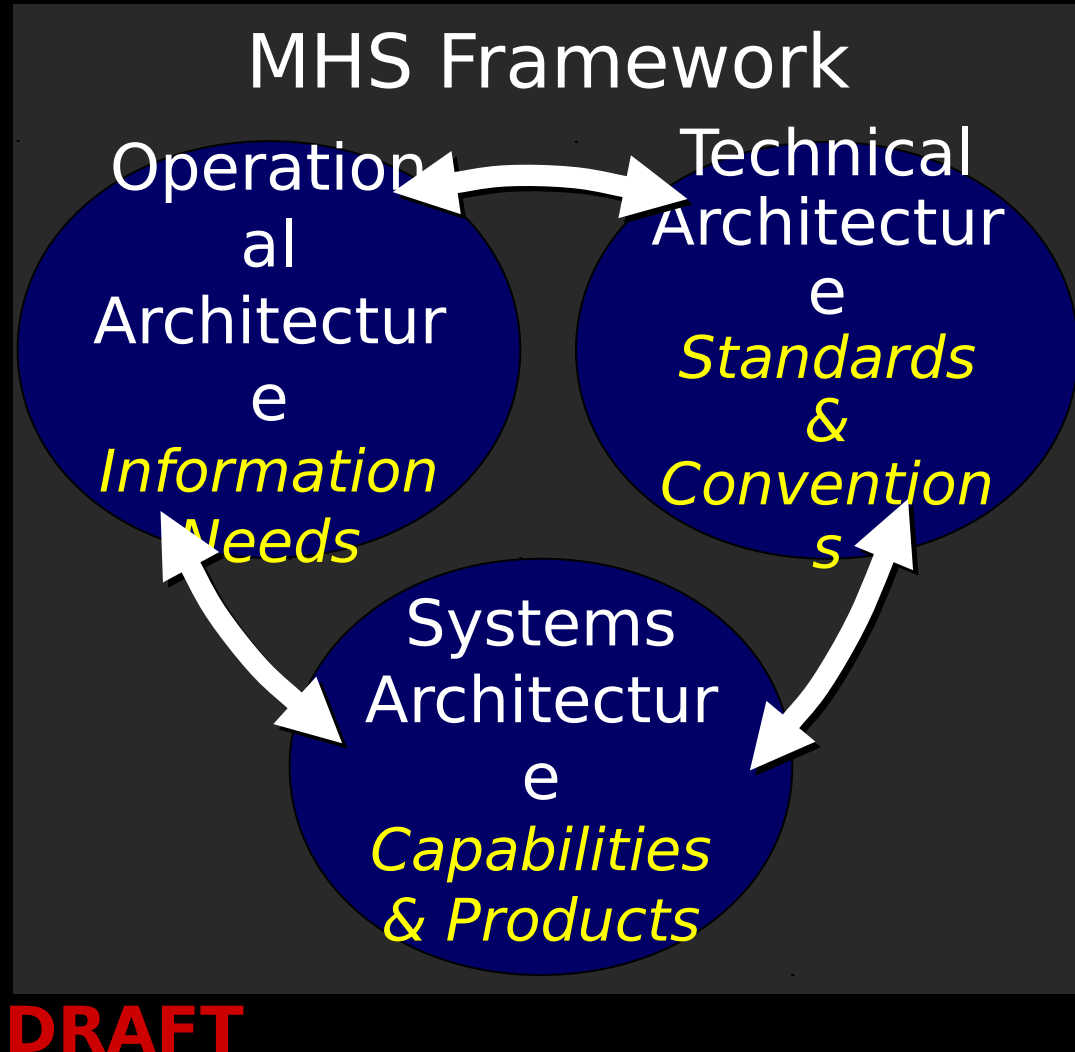
Program Objective Memorandum—Budget Estimate Submission—President's Budget—Annual Execution

# **MHS Enterprise Architecture**

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# Enterprise Architecture

- Align investments with priorities
- Identify duplicate capabilities
- Support system migration
- Improve interoperability
- Identify opportunities for





# **Information Security**

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# Information Security

DoD Public Key  
Infrastructure

DoD IT Security  
Certification/  
Accreditation  
Process

Physical Security

Information  
Assurance  
Vulnerability  
Alerts

Personnel  
Investigative  
Background  
Checks

Defense-in-  
Depth Strategy

Personnel  
Security Training

Critical  
Infrastructure  
Protection

Web Security  
Policies

Security  
Technology  
Evaluations

*Protect,  
Detect,  
React,  
Recover*

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# MHS IT Capabilities





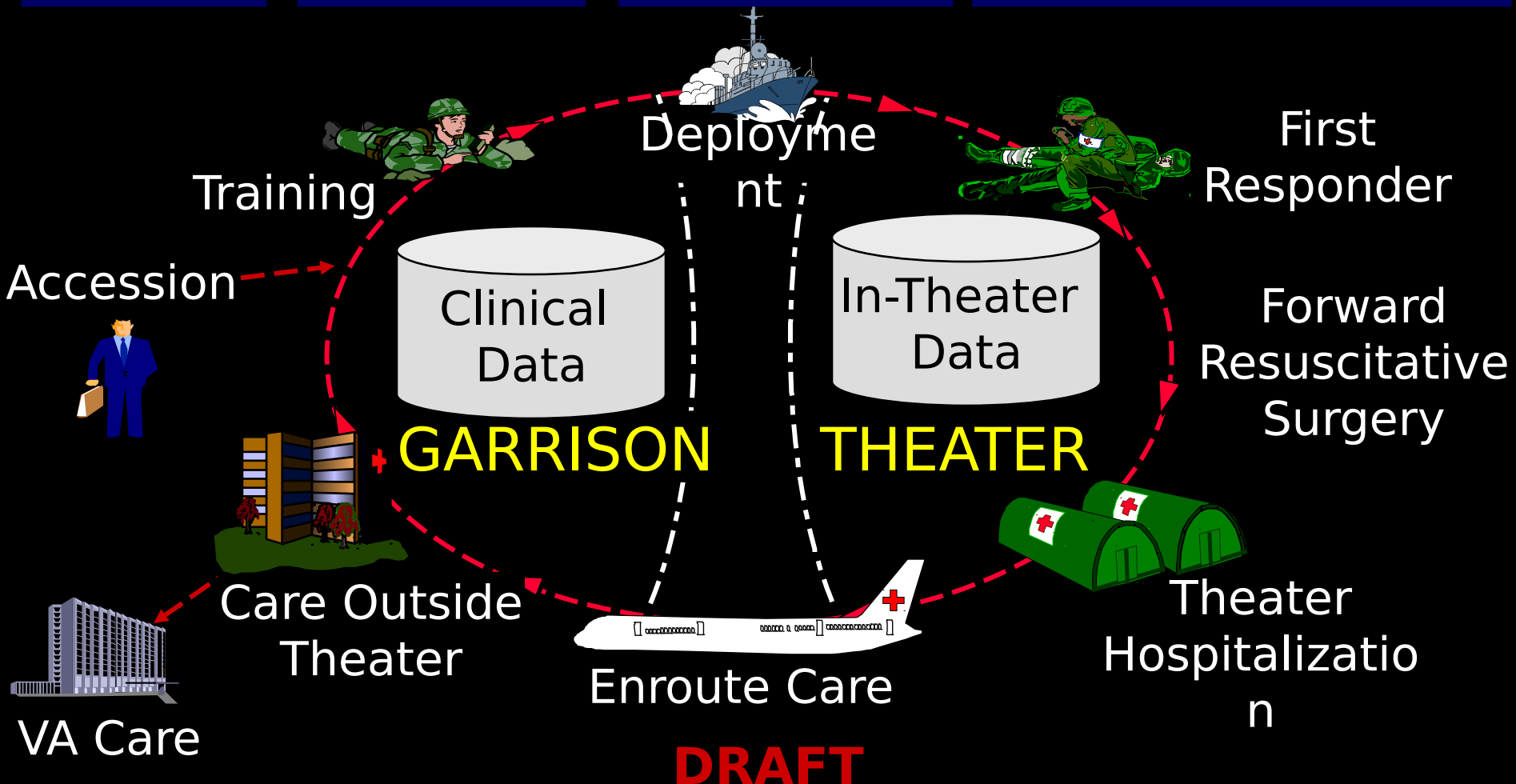
# Integrating Health IT Across the Operational Continuum

Clinical

Logistics

Resources

Decision Support



# Clinical Information Technology



## Composite Health Care System II



# MHS IM/IT Program

## *Composite Health Care System II*

**Comprehensive, Secure  
Electronic Medical  
Records Accessible  
Worldwide, 24/7**

- Patient Demographics
- Exam Documentation
- Order Entry & Results Retrieval
- Alerts Display
- Drug Allergy ID
- Allergy Tracking
- Consult Tracking
- Problem Lists
- Immunization Data
- Wellness Reminders



**Any Record AnyWhere Any Time**



# MHS IM/IT Program

## *Composite Health Care System II*

### *...Into the Future*

- Dental
- Spectacle Ordering
- Ad Hoc Query
- Laboratory (Order Entry, Results Reporting)
- Pharmacy (Order Entry, Results Reporting, Alerts)
- Radiology
- Inpatient



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# Medical Logistics



## Defense Medical Logistics Standard





# MHS IM/IT Program

## *Defense Medical Logistics Standard Support*

### **Comprehensive Medical Logistics**

- Assembly Management
- Equipment & Technology Management
- Pharmacy Prime Vendor
- Medical/Surgical Prime Vendor
- Facilities Management
- Inventory Management
- Customer Area Inventory Management
- Universal Data Repository
- Web-Based Ordering
- Customer Support on the Web



**Right Product, Right Place, Right Time**

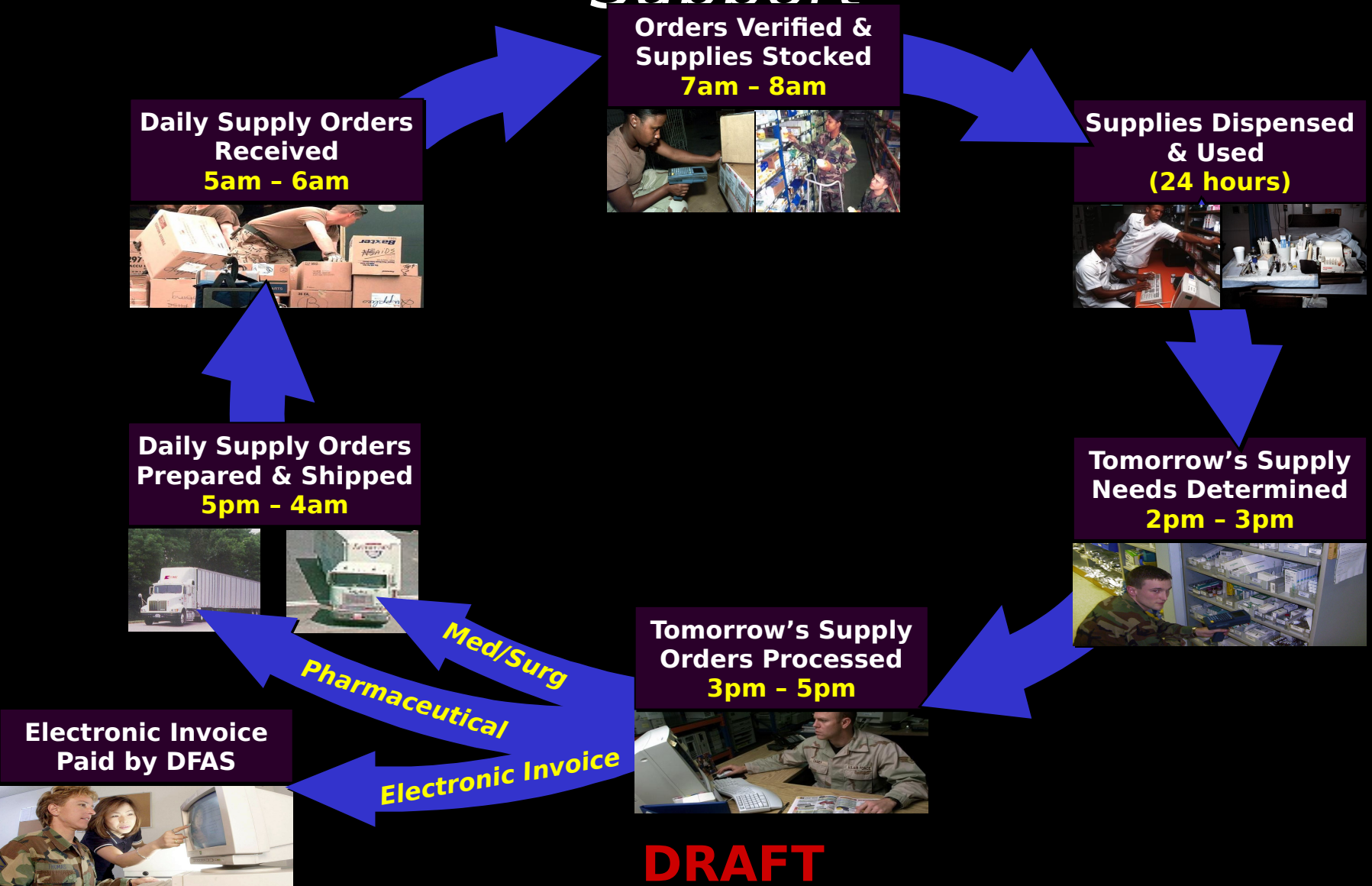
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**In Peace & In War**



# MHS IM/IT Program

## Defense Medical Logistics Standard Support



# Medical Resources Management



Defense Medical Human  
Resources System *internet*





# MHS IM/IT Program

## *Defense Medical Human Resources System – Internet*

### **Web-Based Integrated Human Resource Management**

- Manpower & Personnel
- Labor Cost Assignment
- Education & Training
- Personnel Readiness
- Medical Personnel Asset Visibility



**Right Person, Right Skills, Right Place, Right Time**



# Executive Information & Decision Support



## MHS Data Repository



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# MHS IM/IT Program

## Executive Information/Decision Support

### DATA SOURCES

Composite Health Care System (CHCS)



Clinical

Medical Expense & Performance Reporting System (MEPRS)  
Executive Query System



Cost

Defense Enrollment Eligibility Reporting System (DEERS)



Eligibility

Managed Care Support Contractors (MCSCs)



Purchased Care

### MHS DATA REPOSITORY

**Personnel  
Eligible and  
Enrolled**

**Reference Tables**

**Direct Care  
Clinical and  
Financial**

**Value-Added  
Data Processing**

**Purchased Care  
Clinical and  
Financial**

**MHS Business  
Rules  
& Formulas**

**TRICARE  
Senior, Prime**

### DATA MARTS

MHS Management Analysis & Reporting Tool (MART) (M2)



Population Health Operational Tracking & Optimization (PHOTO)



Managed Care Forecasting & Analysis System (MCFAS)



TMA Reporting Tools (TMA-RT)



Defense Medical Surveillance System (DMSS)



Ad Hoc Reports

Metrics

Projections

Claims

Medical Surveillance

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# Theater



## Theater Medical Information Program



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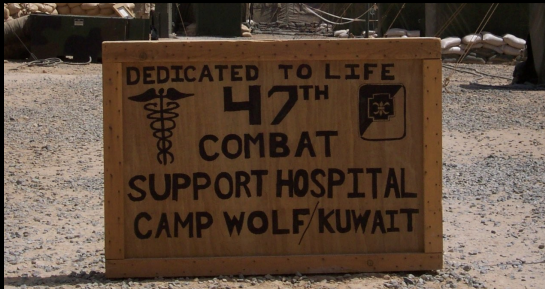


# MHS IM/IT Program

## *Theater Medical Information Program*

**Integrated Suite of Medical Information Systems To Support the Warfighter Worldwide**

- Medical Command & Control/ Surveillance
- Medical Logistics/Blood Management
- Immunization Tracking
- Structured Clinical Notes
- Post-Deployment Surveys
- Patient Movement/Regulating
- Occupational Health
- Battle Injuries/Battlefield Disease



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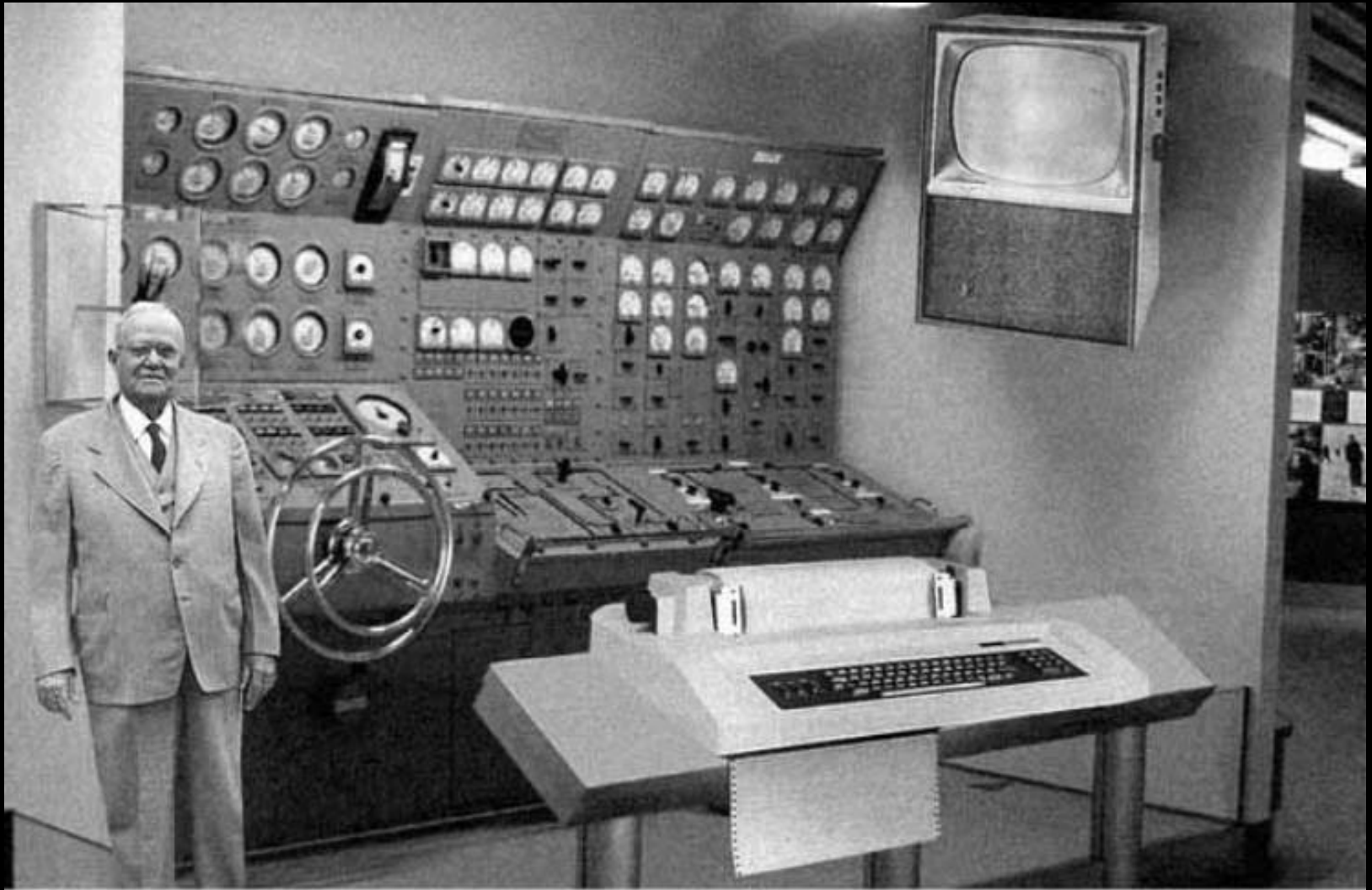


# MHS Direction for the Future





# From a 1954 Popular Mechanics magazine

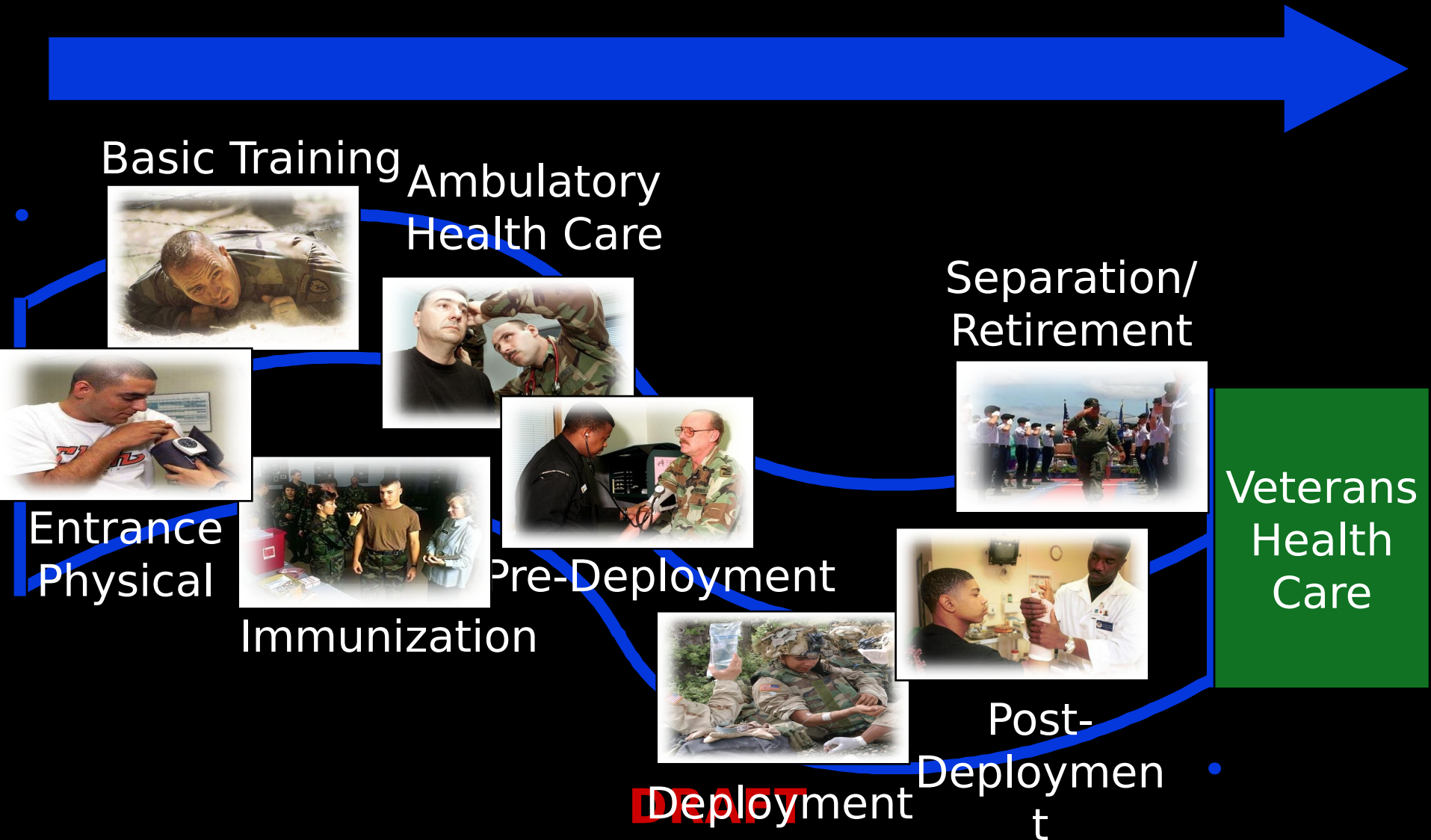


*Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look like in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.*

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# Longitudinal Electronic Health Record



# Telehealth



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# Telehealth

- Initial military TH applications developed by individual Services or Regions
  - Used Service-specific architectures to meet operational missions
  - Lacked interoperability with other Services telehealth applications
- MHS central program office 2004
  - Telehealth WIPT – telemedicine chiefs from all Services, VA and TMA

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# Teleradiology

- I-25 Corridor working Group
  - Allows exchange of radiographs and MRIs between several AF MTFs, Ft Carson, and 4 VA medical facilities
- Sacramento VA MC sends ER after-hour and weekend x-ray and CT images to David Grant MC for interpretation

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# TeleDermatology

- Used among 5 Army sites
  - BAMC, Eisenhower AMC, Landstuhl AMC, Madigan AMC, and Walter Reed AMC
- Web-based application
- Derm consult manager take digital images of the skin condition
- Transmitted to dermatologist at participating medical centers
- Have performed hundreds of consults – with high patient satisfaction

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# TelePsych

- Hawaii Integrated Federal Health Care Partnership
  - Partnership of VA MC and Tripler AMC to manage joint Telehealth projects
  - Ex. Biofeedback Project
    - Helping treat variety of psycho-physiologic disorders through the use of video-teleconferencing for DoD and VA beneficiaries throughout the Pacific Rim

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# Interoperability/Collaboration



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# DoD/VA Sharing

## Joint Electronic Health Records Interoperability Plan

- Federal Health Information Exchange
- Bi-directional Health Information Exchange
- Clinical Data Repository/Health Data Repository

## Other Interoperability Initiatives

- Credentialing Interface
  - Piloting at 3 sites, operational in San Antonio at BAMC, WHMC and South Texas VA HCS
- Laboratory Data Sharing Initiative
  - DoD and VA as reference labs for each other - Chemistries
  - Operational at several sites

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# Federal Health Information Exchange (FHIE)

- 1-way exchange of data from DoD to VA at point of separation from Service
- 2.4M unique patients to date
- Lab – 31.3M results
- Radiology – 5.4M results
- Pharmacy – 32.2M outpatient records
- Allergies
- Admission, Disposition, Transfer records – 5.7M
- Encounter coding from SADR's – 29.5M
- Consult Reports - >.5M

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# Bi-Directional Health Information Exchange (BHIE)

- Near real-time access to patient data
- Re-uses FHIE's infrastructure
- Support for shared patients
- Cycle 1 - Outpatient medication, allergy, and patient identification – operational now
  - Madigan Army Medical Center / VA Puget Sound Health Care System
  - Testing at William Beaumont AMC / EI VA HCS
- Cycle 2 – Lab and radiology results – May 05

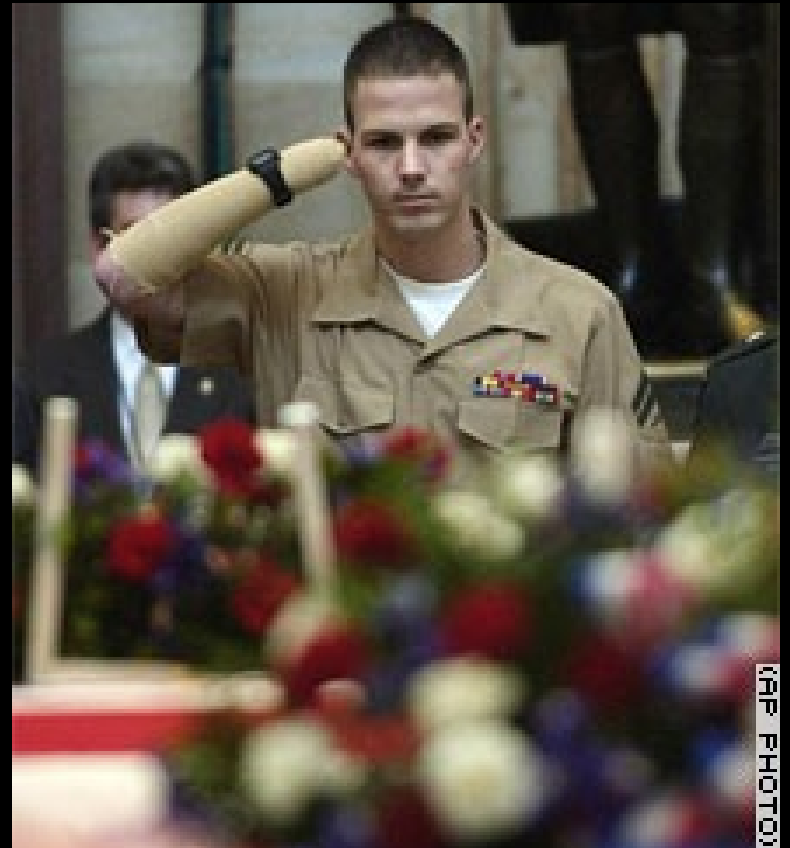
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# Clinical Data Repository / Health Data Repository (CDR / HDR)

- Cornerstone for DoD/VA interoperable electronic health records
- Bi-directional, real-time exchange of computable data for shared patients
  - Outpatient medications
  - Allergies
  - Demographics
  - Lab results
- DoD/VA Pharmacy prototype – 4<sup>th</sup> Qtr 2004
  - Successfully demonstrated exchange of computable data
- Completion date Sep 05

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# Computer/Electronic Accommodations Program (CAP)



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# TRICARE Online



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# MHS IM/IT Program

## *TRICARE Online*

**Secure Portal to  
Health Information  
& Services**

### *Information*

- Health & Wellness
- Benefits
- Claims
- Facilities (hours/locations)
- Providers

### *Services*

- Personal Health Journal
- Drug Catalogue/Interaction Checker
- Appointing



**Enterprise-Wide** ~~DRAFT~~ **User-Friendly** **Secure**

# MHS IM/IT Program

## *TRICARE Online*

### *...Into the Future*

- Web-Based Pharmacy Refill & Renewal
- Routine Test Request
- Appointment Reminders
- Provider-Patient Messaging
- Expanded Appointment Types
- Secure Provider Access to CHCS
- Primary Care Manager Batch Panel Reassignment

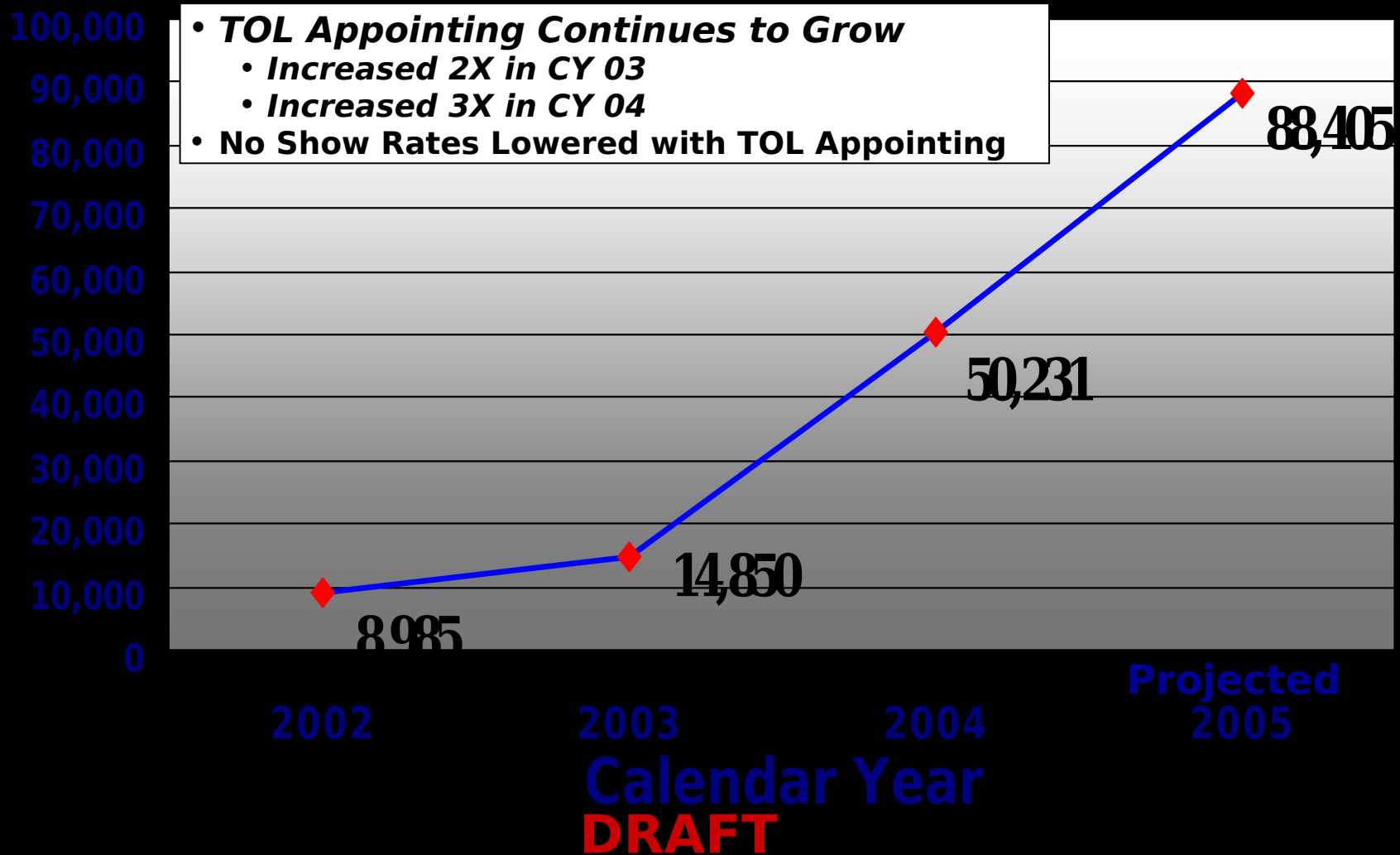



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# [www.tricareonline.com](http://www.tricareonline.com)

## Appointment Trends (2002 - 2005)





# The Military Health System